WHAT IS CLAIMED IS:

1. A method for purification, modification and immobilization of recombinant protein, said method comprising the steps of:

tagging a DNA sequence encoding a target protein into a recombinant vector with a specific tag sequence;

expressing the vector under suitable condition to obtain a recombinant protein;

purifying and modifying said recombinant protein by using an affinity column and a modification reagent;

exchanging said recombinant protein which has been attached to the affinity column with a decoupling reagent; and

immobilizing said recombinant protein onto a substrate.

2. The method as claimed in claim 1, wherein said specific tag comprises Histidine tag, Maltose-binding tag, or GST tag.

3. The method as claimed in claim 2, wherein said specific genetic tag is Histidine tag.

4. The method as claimed in claim 1, wherein said recombinant protein is prepared by using prokaryotic cell, eukaryotic cell or an *in vitro* transcription/translation system.

5. The method as claimed in claim 4, wherein said prokaryotic cell is *E. coli*.

6. The method as claimed in claim 4, wherein said eukaryotic cell is yeast, insect cell or mammalian cell.

7. The method as claimed in claim 1, wherein the affinity column for capturing the recombinant protein is chosen in corresponding to said specific tag.

8. The method as claimed in claim 7, when said specific tag is Histidine tag, a metal chelating column is used as the affinity column.

9. The method as claimed in claim 8, wherein the metal chelation column is represented by a general formula as metal-X column.

10. The method as claimed in claim 9, wherein the metal in said formula comprises nickel, zinc, copper, or cobalt.

11. The method as claimed in claim 9, wherein the X in said formula comprises iminodiacetic acid, nitrilotriacetic acid, tris(carboxymethyl)ethylendiamin, carboxymethylaspartate, or TALON.

12. The method as claimed in claim 9, wherein the metal-X column is Ni-IDA column or Cu-IDA column.

13. The method as claimed in claim 7, when said specific tag is Maltose-binding tag, an amylose column is used as the affinity column.

14. The method as claimed in claim 7, when said specific tag is a GST-tag, glutathione column is used as the affinity column.

15. The method as claimed in claim 1, wherein said recombinant protein is modified by using a biotinylation reaction so to add biotin functional groups to said recombinant protein.

16. The method as claimed in claim 15, wherein the modification of said recombinant protein comprising the steps of:

obtaining a solution containing the recombinant protein;

adding a biotinlyation reagent to cause biotinlyation reaction with said recombinant protein; and

capturing said biotinlyted recombinant protein by using the affinity column so as to fixate said biotinlyted recombinant protein in said affinity column.

17. The method as claimed in claim 15, wherein the modification of said recombinant protein comprising the steps of:

obtaining a solution containing the recombinant protein;

capturing said recombinant protein by using the affinity coloum so as to fixate said recombinant protein in said affinity column; and

adding a biotinlyation reagent to said affinity column to cause biotinlyation reaction with said recombinant protein fixated in said affinity column.

18. The method as claimed in claim 16, wherein said recombinant protein is exchanged from the affinity column by a decoupling reagent, said decoupling reagent is chosen according to the properties of the specific tag and the affinity column.

19. The method as claimed in claim 18, when said specific tag is Histidine tag and the affinity column is a metal chelating column, the decoupling reagent is immidazole.

20. The method as claimed in claim 18, when said specific tag is maltose-binding tag and the affinity column is an amylose column, the decoupling reagent is maltose.

21. The method as claimed in claim 18, when said specific tag is GST tag and the affinity column is a glutathione column, the decoupling reagent is glutathione.

22. The method as claimed in claim 1, wherein the immobilization of said recombinant protein is achieved by modifying the recombinant protein with biotin and attaching the biotin-modified recombinant protien on a substrate coated with streptavidin.